

TAXONOMIC STUDIES ON MILESIINAE FROM THE MUSEUM OF HEBEI UNIVERSITY (DIPTERA, SYRPHIDAE)

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Abstract Syrphid specimens deposited in the Museum of Hebei University were examined and 37 species, belonging to 21 genera in 9 tribes, were identified. The following 9 species are new to science: *Monoceromyia rufipetiolata* sp. nov., *Cheilosia erubescense* sp. nov., *Cheilosia zhangmuensis* sp. nov., *Eristalis borealis* sp. nov., *Eristalis immaculatis* sp. nov., *Eristalis mohensis* sp. nov., *Eristalis zhengi* sp. nov., *Mallota viridiflavescens* sp. nov., *Volucella sichuanensis* sp. nov. The holotypes are deposited in the Museum of Hebei University and the paratypes are deposited in Bio resources Key Laboratory of Shaanxi Province, Shaanxi University of Technology.

Key words Diptera, Syrphidae, taxonomy, new species, Museum of Hebei University, China.

The authors have studied the specimens of Milesiinae in the Museum of Hebei University. In present paper, 37 species, belonging to 9 tribes, 21 genera of Milesiinae, were reported, including 9 new species. All the holotypes are deposited in the Museum of Hebei University, and paratypes are deposited in Bioresources Key Laboratory of Shaanxi Province, Shaanxi University of Technology.

1 List of Syrphid Species Deposited in the Museum of Hebei University

1.1 Callicerini

Callicera aenea (Fabricius, 1781)

Specimens examined: 1 ♂, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 9 June 1995.

Distribution. Ningxia.

1.2 Cerioidini

Monoceromyia rufipetiolata sp. nov.

Specimen examined: 1 ♂, Jiudongping, Tianlin, Guanxi Autonomous Region, 27 May 2002.

Distribution. Guangxi.

1.3 Cheilosini

1) *Cheilosia erubescense* sp. nov.

Specimens examined: 1 ♂, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 17 June 1996; 1 ♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 18 June 1996.

Distribution. Ningxia.

2) *Cheilosia scutellata* (Fallén, 1817)

Specimen examined: 1 ♂, Mt. Jinfo, Nanchuan, Chongqing, 24 July 2004.

Distribution. Heilongjiang, Beijing, Inner Mongolia, Chongqing; Central Part of the Palaearctic Region.

3) *Cheilosia velutina* Loew, 1840

Specimen examined: 1 ♀, Jagdaqi, Inner Mongolia Autonomous Region, 31 July 2004.

Distribution. Jilin, Gansu, Hebei, Shaanxi, Xinjiang, Sichuan; Holarctic Region.

4) *Cheilosia zhangmuensis* sp. nov.

Specimen examined: 1 ♂, Zhangmu, Tibet, 5 July 2004.

Distribution. Tibet.

5) *Rhingia sexmaculata* Brunetti, 1913

Specimens examined: 2 ♂♂, Huangtuling, Wenxian, Gansu Province, 8 July 2003; 7 ♂♂, 2 ♀♀, Matoutan, Baoji, Shaanxi Province, 23 July 2003.

Distribution. Shaanxi, Gansu, Fujian; India.

1.4 Eristalini

1) *Eristalinus sepulchralis* (Linnaeus, 1758)

Specimen examined: 1 ♂, Minzhu, Langao, Shaanxi Province, 5 July 2003.

Distribution. Shaanxi, Inner Mongolia, Gansu, Xinjiang, Hebei, Shanxi, Shandong, Jiangsu, Zhejiang, Jiangxi, Hunan, Hubei, Guangdong, Sichuan, Tibet; Mongolia, Japan, Ceylon, India, Europe, North Africa.

2) *Eristalis arbustorum* (Linnaeus, 1758)

Specimens examined: 1 ♂, Tumen, Jilin Province, 12 July 2003; 1 ♂, Qinglong, Hebei Province, 23 July 1998; 1 ♀, Shexian, Hebei

Province, 20 July 1998; 2 ♂♂, 5 ♀♀, Mohe, Heilongjiang Province, 31 July 2004; 1 ♀, Arixan, Inner Mongolia Autonomous Region, 12 Aug. 1997; 1 ♀, Jagdaq, Inner Mongolia Autonomous Region, 31 July 2004; 1 ♂, Cuogang, Hailar, Inner Mongolia Autonomous Region, 22 June 1994; 1 ♂, Baiyinshuo, Inner Mongolia Autonomous Region, 14 Aug. 1997; 1 ♂, Genhe, Inner Mongolia Autonomous Region, 6 Aug. 1997; 3 ♀♀, Genhe, Inner Mongolia Autonomous Region, 28 July 2004; 1 ♀, Yanjing, Markam, Tibet, 13 June 2004.

Distribution. Heilongjiang, Liaoning, Inner Mongolia, Ningxia, Gansu, Qinghai, Xinjiang, Hebei, Henan, Shanxi, Shaanxi, Shandong, Zhejiang, Hubei, Fujian, Sichuan, Yunnan, Tibet; Pro Russia, India, Iran, Syria, Afghanistan, Europe, North America, North Africa.

3) *Eristalis borealis* **sp. nov.**

Specimens Examined: 1 ♂, 2 ♀♀, Suifenhe, Heilongjiang Province, 15 July 2003; 1 ♀, Wuying, Heilongjiang Province, 24 July 2003; 1 ♀, Mt. Changbai, Jinlin Province, 8 Aug. 2004; 1 ♀, Mt. Nincui, Mangui, Inner Mongolia Autonomous Region, 29 June 2004.

Distribution. Heilongjiang, Jilin, Inner Mongolia.

4) *Eristalis cerealis* **Fabricius, 1805**

Specimens examined: 1 ♂, Yaojiawan, Tianlin, Guangxi Autonomous Region, 3 July 2002; 1 ♂, Mt. Guangtuo, Pingquan, Hebei Province, 21 July 1998; 1 ♀, Mt. Guangtuo, Pingquan, Hebei Province, 2 Aug. 1998; 1 ♂, Mt. Baiyun, Songxian, Henan Province, 20 July 2002; 1 ♀, Mohe, Heilongjiang Province, 31 July 2004; 1 ♀, Mt. Liupan, Ningxia Autonomous Region, 1 June 1996; 1 ♂, Mt. Liupan, Ningxia Autonomous Region, 15 June 1996; 2 ♀♀, Kangding, Sichuan Province, 5 Aug. 1999; 1 ♀, Songpan, Sichuan Province, 23 July 1999; 1 ♀, Bayi, Nyingchi, Tibet, 3 July 2002; 4 ♀♀, Bomi, Tibet, 20 Aug. 2003; 2 ♂♂, Yadong, Tibet, 30 June 2004; 1 ♂, Gongbo' Gyamda, Tibet, 6 June 2004; 1 ♂, 1 ♀, Zhuangmu, Nyalam, Tibet, 5 July 2004; 1 ♀, Saga, Tibet, 9 Aug. 2004; 1 ♂, Pianma, Lushui, Yunnan Province, 9 May 2004; 1 ♀, Xishan, Kunming, Yunnan Province, 27 July 2004; 2 ♂♂, 2 ♀♀, Ninglang, Yunnan Province, 13 July 2004; 2 ♂♂, Gongshan, Yunnan Province, 2 July 2004; 1 ♀, Pingba, Chengkou, Chongqing, 11 July 2003.

Distribution. Heilongjiang, Liaoning, Inner

Mongolia, Gansu, Qinghai, Xinjiang, Hebei, Shaanxi, Anhui, Shandong, Jiangsu, Zhejiang, Hubei, Jiangxi, Hunan, Fujian, Guangdong, Sichuan, Yunnan, Tibet; Pro Russia, Korea, Japan, the Oriental.

5) *Eristalis immaculatis* **sp. nov.**

Specimens Examined: 2 ♀♀, Mohe, Heilongjiang Province, 31 July 2004; 1 ♀, Song, Tibet, 30 July 2004.

Distribution. Heilongjiang, Tibet.

6) *Eristalis mohensis* **sp. nov.**

Specimen examined: 1 ♀, Mohe, Heilongjiang Province, 31 July 2004.

Distribution. Heilongjiang.

7) *Eristalis rotundistylus* **Li**

Specimens examined: 1 ♀, Kangding, Sichuan Province, 5 Aug. 1999; 1 ♂, Mainling, Tibet, 20 June 2004; 2 ♀♀, Yadong, Tibet, 30 June 2004.

Distribution. Tibet, Sichuan.

8) *Eristalis tenax* (**Linnaeus, 1758**)

Specimens examined: 1 ♂, 1 ♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 12 June 1996; 2 ♀♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 14 June 1996; 4 ♂♂, 5 ♀♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 15 June 1996; 2 ♀♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 9 June 1996; 2 ♀♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 11 June 1996; 1 ♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 17 June 1996; 1 ♀, Erlonghe, Jingyuan, Ningxia Autonomous Region, 8 June 1996; 1 ♀, Longtan, Jingyuan, Ningxia Autonomous Region, 8 June 1996; 1 ♂, 1 ♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 11 June 1995; 1 ♂, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 10 June 1995; 1 ♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 15 June 1995; 1 ♀, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 8 June 1995; 2 ♂♂, 1 ♀, Liuliping Forestry Centre, Xinglong, Hebei Province, 3 Aug. 1999; 2 ♀♀, Mt. Baishi, Laiyuan, Hebei Province, 3 Aug. 1999; 2 ♂♂, 1 ♀, Chadao Forestry Centre, Zhuolu, Hebei Province, 18 July 1999; 4 ♂♂, 6 ♀♀, Mt. Wuling, Xinglong, Hebei Province, 14 July 1998; 1 ♂, 2 ♀♀, Qing East Mausoleum, Zunhua, Hebei Province, 24 July 1998; 3 ♀♀, Qinglong, Hebei Province, 23 July 1998; 2 ♂♂, 3 ♀♀, Mt. Xiaowutai, Yuxian, Hebei Province, 30 July 1998; 4 ♂♂, 5 ♀♀, Tunkan Forestry Centre, Kangbao, Hebei Province, 31 July 1998; 1 ♂, Cabei Meadow, Zhangbei, Hebei

Province, 29 July 1998; 1 ♂, Mt. Guangtuo, Pingquan, Hebei Province, 21 July 1998; 1 ♀, Piancheng Forestry Centre, Shexian, Hebei Province, 20 July 1998; 1 ♂, Guyuan, Hebei Province, 21 July 1998; 2 ♀ ♀, Chayu Forestry Centre, Weichang, Hebei Province, 7 Aug. 1998; 1 ♂, Zhangbei, Hebei Province, 7 July 2004; 2 ♂ ♂, Changli Forestry Centre, Qinhuangdao, Hebei Province, 12 July 1998; 1 ♂, Chengde, Hebei Province, 12 June 2004; 1 ♂, 2 ♀ ♀, Xinglong, Hebei Province, 2 Aug. 1999; 1 ♂, Mt. Baishi, Fuping, Hebei Province, 6 Aug. 1999; 1 ♂, 1 ♀, Longhua, Hebei Province, 24 July 1999; 1 ♀, Mt. Baishi, Laiyuan, Hebei Province, 11 July 1999; 2 ♂ ♂, 5 ♀ ♀, Mt. Xiaowutai, Hebei Province, 7 July 2001; 1 ♀, Urumqi, Xinjiang Uygur Autonomous Region, 7 Aug. 1992; 1 ♀, Bomi, Tibet, 20 Aug. 2003; 1 ♂, Zhangmu, Nyalam, Tibet, 5 July 2004; 1 ♂, Yadong, Tibet, 1 July 2004; 1 ♂, 2 ♀ ♀, Yadong, Tibet, 30 June 2004; 2 ♀ ♀, Nedong, Tibet, 24 June 2004; 1 ♂, 2 ♀ ♀, Zhangxian, Gansu Province, 14 July 2003; 1 ♀, Sunan, Gansu Province, 27 July 2004; 1 ♀, Mt. Chengjia, Daozhen, Guizhou Province, 24 May 2004; 3 ♂ ♂, 3 ♀ ♀, Yuheba, Daozhen, Guizhou Province, 25 May 2004; 1 ♂, Daozhen, Guizhou Province, 31 May 2004; 1 ♂, 1 ♀, Gongshan, Yunnan Province, 2 May 2004; 1 ♂, Pianma, Lushui, Yunnan Province, 11 May 2004; 1 ♂, Dali, Yunnan Province, 13 Nov. 2003; 1 ♀, Mt. Cang, Dali, Yunnan Province, 30 Apr. 2004; 1 ♀, Kunming, Yunnan Province, 27 May 2004; 2 ♂ ♂, Baiyinhushuo, Horqin, Inner Mongolia Autonomous Region, 14 Aug. 1997; 1 ♂, 2 ♀ ♀, Arxan, Inner Mongolia Autonomous Region, 12 Aug. 1997; 1 ♂, Mt. Daqing, Inner Mongolia Autonomous Region, 1 Aug. 1991; 1 ♀, Wunan, Qinghai Province, 22 June 2002; 3 ♂ ♂, 1 ♀, Chengkou, Chongqing, 13 July 2003; 2 ♂ ♂, 1 ♀, Jiuzhaigou, Sichuan Province, 31 July 2002; 1 ♂, Kangding, Sichuan Province, 3 June 2004; 2 ♀ ♀, Kangding, Sichuan Province, 15 July 2000; 2 ♂ ♂, 1 ♀, Songpan, Sichuan Province, 23 July 1999; 8 ♂ ♂, 13 ♀ ♀, Kangding, Sichuan Province, 5 Aug. 1999.

Distribution. Worldwide.

9) *Eristalis zhengi* **sp. nov.**

Specimen examined: 1 ♂, Maizhokunggar, Tibet, 5 July 2002.

Distribution. Tibet.

10) *Eristalodes paria* (**Bigot, 1880**)

Specimen examined: 1 ♀, Kunming, Yunnan

Province, 27 May 2004.

Distribution. Tibet, Jiangxi, Guangxi, Sichuan, Yunnan, Taiwan; India, Java, Laos, Malaya, Nepal, Japan.

11) *Helophilus virgatus* (**Coquillett, 1898**)

Specimens examined: 1 ♀, Tumen, Jilin Province, 12 July 2003; 1 ♂, Erlonghe, Jingyuan, Ningxia Autonomous Region, 17 June 1996; 1 ♂, Zhuolu, Hebei Province, 11 July 2002.

Distribution. Liaoning, Hebei, Hubei, Hunan, Jiangsu, Zhejiang, Fujian, Sichuan, Yunnan, Tibet; Pro Russia, Japan.

12) *Helophilus sapporensis* **Matsumura, 1911**

Specimen examined: 1 ♀, Mt. Changbai, Jilin Province, 8 Aug. 2004.

Distribution. Heilongjiang, Jilin, Tibet; Pro Russia, Japan.

13) *Lathrophthalmus aeneus* (**Scopoli, 1763**)

Specimens examined: 1 ♀, Xianxian, Hebei Province, 26 July 2000; 1 ♂, Baoding, Hebei Province, 4 Sep. 2005.

Distribution. Shaanxi, Gansu, Jiangsu, Zhejiang, Jiangxi, Hunan, Fujian, Guangdong, Hainan, Guangxi, Sichuan, Yunnan, Tibet; Japan, Southeast Asia, Australia, North America.

14) *Mallota viridiflavescens* **sp. nov.**

Specimens examined: 3 ♂ ♂, 1 ♀, Mt. Zibai, Liuba, Shaanxi Province, 24 July 2003; 1 ♂, Liuba, Shaanxi Province, 14 June 2004; 1 ♀, Qinglong, Hebei Province, 23 July 1998.

Distribution. Shaanxi, Hebei.

15) *Mesembrius flaviceps* (**Matsumura, 1905**)

Specimens examined: 3 ♂ ♂, Baiyang Dian, Anxin, Hebei Province, 19 Aug. 2005.

Distribution. Hebei, Gansu, Jiangsu, Zhejiang, Hubei, Hunan, Guizhou, Sichuan; Pro Russia, Korea, Japan.

16) *Phytomia zonata* (**Fabricius, 1787**)

Specimens examined: 1 ♀, Huixiang Ping, Jiangkou, Guizhou Province, 1 Aug. 2001; 1 ♀, Qing West Mausoleum, Yixian, Hebei Province, 8 July 1998; 2 ♂ ♂, Minzhu, Langao, Shaanxi Province, 5 July 2003; 1 ♀, Medong, Tibet, 12 Aug. 2003; 1 ♀, Mt. Jingfo, Nanchuan, Chongqing, 21 July 2003.

Distribution. Heilongjiang, Liaoning, Inner Mongolia, Gansu, Hebei, Henan, Shandong, Shaanxi, Jiangsu, Zhejiang, Hunan, Hubei, Fujian, Guangdong, Hainan, Guangxi, Sichuan, Yunnan; Southeast Asia, Pro Russia, Korea, Japan.

1.5 *Eumerini*

Eumerus strigatus (Fallén, 1817)

Specimen examined: 1 ♂, Nenjiang, Heilongjiang Province, 2 Aug. 2004.

Distribution. Heilongjiang, Inner Mongolia, Gansu, Xinjiang, Shandong, Zhejiang, Yunnan; Prussia, Mongolia, Europe, North Africa, North America.

1.6 Milesiini**1) Palumbia formosana (Shiraki, 1930)**

Specimens examined: 1 ♂, Kangding, Sichuan Province, 5 Aug. 1999; 1 ♂, Yadong, Tibet, 30 June 2004.

Distribution. Yunnan, Fujian, Sichuan, Tibet, Taiwan.

2) Rhinotropidia rostrata (Shiraki, 1930)

Specimens examined: 1 ♂, 1 ♀, Baiyang Dian, Anxin, Hebei Province, 19 Aug. 2005.

Distribution. Hebei, Gansu; Prussia, Japan.

3) Syritta pipiens (Linnaeus, 1758)

Specimens examined: 1 ♀, Dangchang, Gansu Province, 13 July 2003; 2 ♀ ♀, Liuliping Forestry Centre, Xinglong, Hebei Province, 3 Aug. 1999; 1 ♀, Xinglong, Hebei Province, 2 Aug. 1999; 1 ♀, Zhangbei, Hebei Province, 7 July 2004; 4 ♂ ♂, 2 ♀ ♀, Mohe, Heilongjiang Province, 31 July 2004; 1 ♂, 1 ♀, Mt. Changbai, Jilin Province, 8 Aug. 2004; 1 ♂, Mt. Changbai, Jilin Province, 8 July 2003; 1 ♂, 1 ♀, Jagadaqi, Inner Mongolia Autonomous Region, 31 July 2004; 3 ♂ ♂, 3 ♀ ♀, Genhe, Inner Mongolia Autonomous Region, 28 July 2004.

Distribution. Heilongjiang, Jilin, Inner Mongolia, Shaanxi, Gansu, Xinjiang, Hebei, Shanxi, Fujian, Yunnan; Holarctic Region, Nepal.

4) Temonostoma bombylans (Fabricius, 1805)

Specimens examined: 1 ♂, 1 ♀, Jiuzhaigou, Sichuan Province, 6 Aug. 2002.

Distribution. Jilin, Sichuan; Korea, Japan, Prussia, Europe, North Africa.

1.7 Sericomyni**Pararctophila oberthueri Hervé Bazin, 1941**

Specimens examined: 1 ♂, Longtan, Jingyuan, Ningxia Autonomous Region, 11 June 1996.

Distribution. Ningxia, Gansu, Hebei, Hubei, Jiangsu, Zhejiang, Fujian, Sichuan, Yunnan, Tibet; Prussia, Mongolia, India.

1.8 Volucellini**1) Volucella bombylans (Linnaeus, 1758)**

Specimens examined: 1 ♂, Mt. Baishi, Fuping,

Hebei Province, 6 Aug. 1999; 1 ♀, Zhuolu, Hebei Province, 20 Aug. 2005.

Distribution. Heilongjiang, Inner Mongolia, Xinjiang, Hebei, Shanxi; Mongolia, Prussia, Europe, North Africa.

2) Volucella jeddona Bigot, 1875

Specimens examined: 1 ♀, Mt. Xiaowutai, Yuxian, Hebei Province, 29 July 1998; 1 ♀, Piancheng forestry centre, Shexian, Hebei Province, 20 July 1998.

Distribution. Heilongjiang, Jilin, Inner Mongolia, Hebei, Shanxi, Anhui, Yunnan; Mongolia, Prussia, Japan.

3) Volucella nigricans Coquillett, 1898

Specimen examined: 1 ♀, Daozheng, Guizhou Province, 24 Aug. 2004.

Distribution. Shaanxi, Anhui, Zhejiang, Hubei, Jiangxi, Hunan, Fujian, Taiwan, Guangxi, Sichuan; Korea, Japan.

4) Volucella pellucens tabanoides Mostchulsk, 1859

Specimen examined: 1 ♀, Jiuzhaigou, Sichuan Province, 1 Aug. 2002.

Distribution. Heilongjiang, Jilin, Liaoning, Inner Mongolia, Qinghai, Xinjiang, Hebei, Shanxi, Shaanxi, Hubei, Sichuan, Yunnan; Prussia, Mongolia, Korea, Japan.

5) Volucella plumatoides Hervé Bazin, 1923

Specimen examined: 1 ♂, Mt. Liupan, Jingyuan, Ningxia Autonomous Region, 10 July 1995.

Distribution. Ningxia, Xinjiang, Qinghai, Hebei, Sichuan, Yunnan, Tibet; Prussia, Mongolia.

6) Volucella sichuanensis sp. nov.

Specimen examined: 1 ♂, Mt. Qiegong, Kangding, Sichuan Province, 5 May 1999.

Distribution. Sichuan.

1.9 Xylotini**1) Chalcosyrphus amurensis (Stackelberg, 1948)**

Specimens examined: 1 ♂, Fengning, Hebei Province, 20 July 1999; 1 ♂, Jiuzhaigou, Sichuan Province, 1 Aug. 2002.

Distribution. Heilongjiang, Jilin, Inner Mongolia, Hebei, Sichuan; Prussia.

2) Xylota ignava (Panzer, 1798)

Specimens examined: 1 ♂, Zongshan, Gyangze, Tibet, 2 July 2002; 1 ♀, Nedong, Tibet, 24 June 2004.

Distribution. Xinjiang, Jilin, Inner Mongolia, Qinghai, Sichuan, Tibet; Korea, Japan, Mongolia,

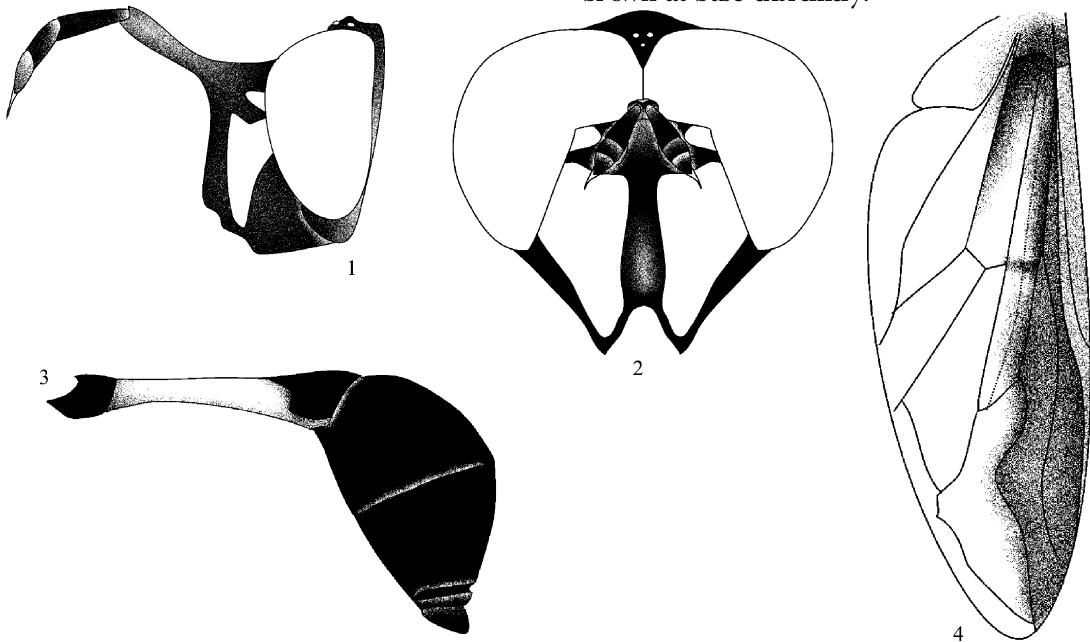
Pro Russia, Europe.

2 Descriptions of new species

2.1 *Monoceromyia rufipetiolata* sp. nov. (Figs. 1-4)

Male. Head broader than thorax. Eyes bare. Vertical triangle projected, black with short whitish yellow hairs, whitish yellow pollinose around. Occiput black, whitish yellow pollinose, except lower parts white pilose laterally. Frons black, with yellow spots basally near eye margins, covered with short light hairs, frontal prominence dark brown, about equal to antenna in length. In profile face approximately

vertical, with oral margins contracted, without median facial tubercle. Face paralleled laterally at upper half, contracted conically at half of lower part in frontal view. Face yellow, short pilose, black laterally, median black stripe contracted near oral margin, extending upwards to base of frontal prominence and expanding laterally T-shaped, with the out ends obtusely triangular. Cheeks black, white pilose. Antennae dark brown, with the flagellomere brown, the scape about 1.2 times as long as the pedicle, the pedicle and flagellomere almost equal in length. Arista about 60% of flagellomere in length, white, black brown at base extremely.



Figs. 1-4. *Monoceromyia rufipetiolata* sp. nov. 1. Head, in lateral view ♂. 2. Head, in frontal view ♂. 3. Abdomen, in lateral view ♂. 4. Wing.

Mesonotum long than wide, black, thinly gray pollinose, spot on postpronotal lobe yellow, postalar callus dark brown, densely covered with granules and short light brown hairs. Scutellum black, with narrow yellow margin posteriorly, covered with granules and short dark brown hairs. Pleura black, with granules and short white hairs on anepisternum, katepisternum, anepimera of mesothorax except katepimeron of mesothorax and metapleura lubricious, without any granules. Metasternum shortly white pilose. Legs brown, short light pilose, with coxa and trochanter black brown, tarsi of legs yellowish brown except apical 2 segments black brown. Wing hyaline, brown at anterior half, most part of the first basal cell but apical part, the second basal cell except anterior part apically. Wing covered with microtrichia except basal half of 1A cell, base of anal lobe and most part of

alula.

Abdomen black, matt, heavily fine granulated, short light pilose, hairs on tergites 1 and 2 longer laterally. Tergite 2 petiolatus, equal about to tergites 3 and 4 together in length. Tergites 3 and 4 bulked, nearly elliptical. Tergite 1 with reddish, lubricious margin posteriorly. Tergite 2 red at most part, with black granulation medially, a black spot at posterior part and yellow spots at apical corner laterally. Tergite 3 with reddish margin posteriorly, separated broadly in the middle and not extended to lateral margins. Tergite 4 deeply concaved before apical margin.

Female: unknown.

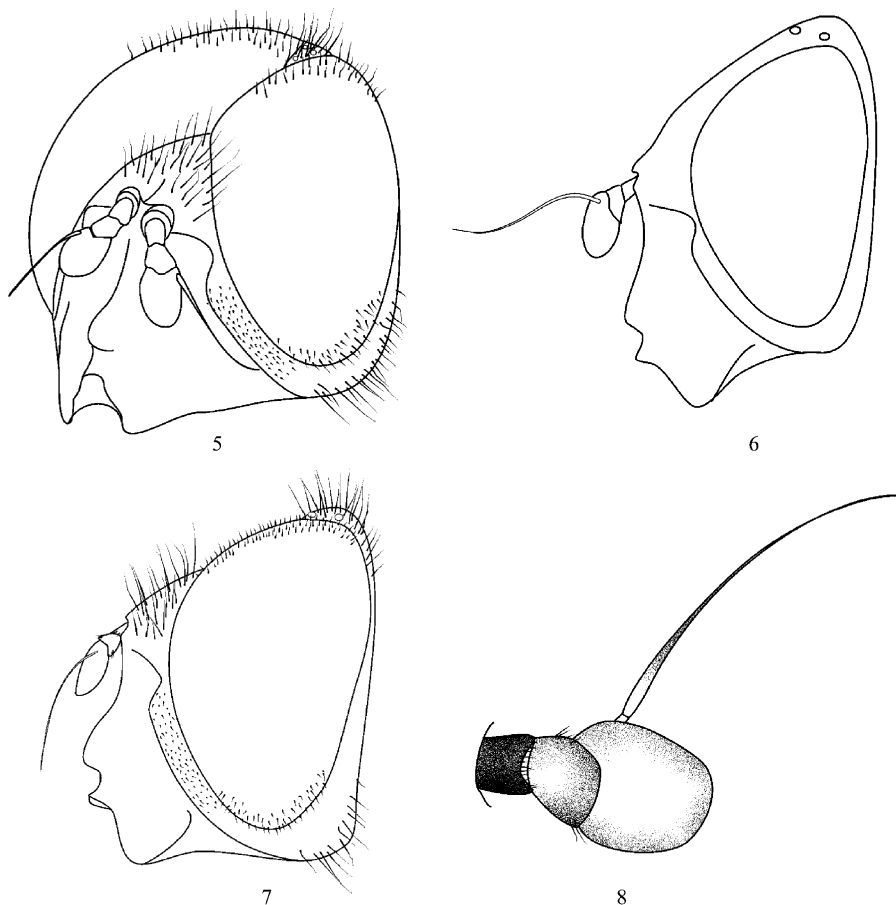
♂ Length: body 15 mm, wing 12 mm.

Holotype ♂, Jiudongping (24°17' N, 106°14' E), Tianlin, Guangxi Autonomous Region, 27 May 2002, collected by YANG XiurJuan.

The new species is close to *Monoceromyia yentaushanensis*, but differs from the latter with postalar callus dark brown, most part of tergite 2 reddish, and apical 2 segments of tarsi black brown.

Etymology. The specific name is derived from the Latin words *rufus* (red) and *petiolatus* (petiolate), referring to tergite 2 petiolate, red.

2.2 *Cheilosia erubescens* sp. nov. (Figs. 5-8)



Figs. 5-8. *Cheilosia erubescens* sp. nov. 5. Head, in anterolateral view ♂. 6. Head, in lateral view ♀. 7. Head, lateral view ♂. 8. Antenna.

Male. Head wider than thorax. Eyes yellow pilose, length of eyes connection approximately equal to length of frons. Vertical triangle black, covered with long buff hairs, except hairs dull black before ocellar triangle. Occiput with yellowish white hairs and dusted heavily. Frons shining black, thickly granulated, yellowish white long pilose, except for a few black hairs on dorsum of frontal prominence, with medial frontal furrow distinct, broad and deep at anterior part. Lunule fulvous, antennal pits separated broadly. Face broadened downwards laterally in frontal view, deeply concaved below frontal prominence, medial facial tubercle obviously produced over frontal prominence, oral margin prominent within the plane of medial facial tubercle. Face black, grey pollinose and tomentose below frontal prominence and on lower parts laterally. Eye margins broad, in broadest part nearly equal the third antennal segment

in width, grey pollinose, short yellow pilose, with the lower half mahogany, but dark red just below eyes. Cheeks black covered with grey hairs and pollen. Antenna yellow, but 1st segment shining black, 2nd segment black brown on ventral parts, pollinose ventrally and on apex dorsally, basal 2 segments yellow pilose apically. The flagellomere distinctly pollinose, as long as broad, with apex rounded. Arista dark brown, nearly bare.

Mesonotum longer than wide, fine granulated, black, distinctly pollinose laterally at anterior part, with pollinose spots inside postpronotal lobe. Dorsum of thorax covered with erected yellow hairs, long and short black bristles on notopleuron, above base of wings and postalar callus, intemixed with black hairs on sides and posterior part. Scutellum black, with fine granulations, covered erected long yellow hairs, long black bristles and hairs on posterior margin.

Subscutellar fringe long, dense, yellow. Pleura black with pollen and yellow hairs, but yellow and black bristles on posterior part of anepisternum dorsally. Leg black with white pollen and yellow hairs, with femora yellow apically, tibiae yellow with broad black ring on the middle parts, black ring on hind tibia nearly extended to its apex, basal 2 segments of middle tarsi dark yellow. Femora with black hairs apically, hind femur with short black bristles on apical 2/3 ventrally. Wing hyaline with microtrichia, stigma yellow, upper cross vein jointed the third longitudinal vein at right angle. Halter yellow with black head.

Abdomen olivary, black with fine granulations, covered with yellow long hairs laterally and basally, yellow hairs on middle parts of tergites short, half erected. Venter covered with appressed, brown yellow short hairs.

Female Vertex about 30% of head in width, broadened laterally forward. Vertex and frons shining black, with coarse granulations, erected yellow hairs, pollen laterally along eyes. Frons with distinct medial furrow, lateral furrows apart from margin of eyes. Antenna larger than in male. Anepisternum without black bristles on posterior corner dorsally. Black ring on tibiae narrower than in male. Tarsi brown with apical segments black, hind tarsi darker. Halter yellow. All other characters as in male.

Length. Body: ♂ 10 mm, ♀ 9 mm; wing: ♂ 9.5 mm, ♀ 8.5 mm.

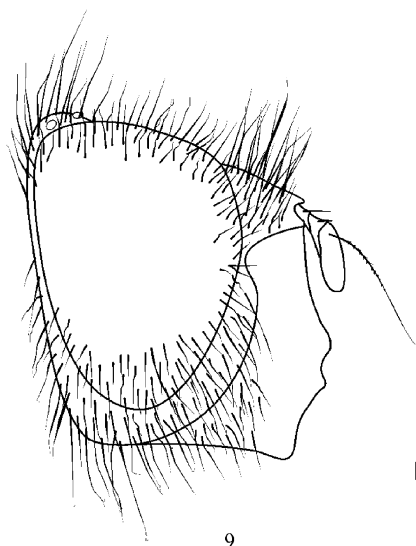
Holotype ♂, Mt. Liupan (24°29' N, 106°21' E), Jingyuan, Ningxia Autonomous Region, 17 June 1996, collected by REN Guo Dong. Paratype 1 ♀, 18 June 1996, as holotype.

The new species is similar to *Cheilosia hirayamaensis* Shiraki, but differs from it with frons yellow pilose, eye margins dark red at lower parts, tarsi of male black, except basal 2 segments dark yellow.

Etymology. The specific name is derived from the Latin words *erubescens* (red), referring to eye margin dark red at lower parts.

2.3 *Cheilosia zhangmuensis* sp. nov. (Figs. 9–10)

Male. Eyes densely heavy long yellow pilose, line of connection of eyes approximately equal to length of frons. Vertical triangle black, yellow pilose, with ocelli arranged equilaterally. Occiput black with white pollen and hairs densely. Frons inflated conspicuously, medial furrow indistinct, shining black, covered with long black hairs, pollinose near eyes. Lunule brown, antennal pits separated. Face broadened downwards laterally, black, heavily white tomentose, with medial facial tubercle small. Eye margins broadened, in broadest part nearly equal depth of the third antennal segment, densely covered with long white hairs and dusting. Cheeks black, with white dusting and long hairs. Antennae black, with the flagellomere yellowish brown. Arista long, dark black, nearly bare.



9



10

Figs. 9–10. *Cheilosia zhangmuensis* sp. nov. 9. Head, in lateral view ♂. 10. Antenna.

Mesonotum black, shiny, densely covered with long yellow hairs, sparsely pollinose laterally. Scutellum shining black, with long yellow hairs, subscutellar fringe yellow, long, dense. Pleura black,

with grey dusting and long yellow hairs. Metasternum long yellow pilose. Legs black, grey pollinose, with apex of femora and tibiae, basal third of fore and middle tibiae, basal half of middle tibiae yellow

brown, medial rings on tibiae blackish brown to black, basitarsi of middle leg yellow brown. Hairs on legs light yellow, dense and long on femora. Wing hyaline, slightly yellow on base, covered with microtrichia. Abdomen olivary, shining black, with reflection, covered with erected, long, yellow hairs. Venter black, covered with grey dusting and erected, long, yellow hairs, sternites 1 and 2 with yellowish brown apical margins.

Female: unknown.

♂ Length: body 11 mm, wing 10 mm.

Holotype ♂, Zhangmu (27° 59' N, 86° 0' E), Tibet, 5 June 2004, collected by BAYi Bin.

The species is close to *Cheilosia distincta* Barkalov et Cheng, but differs from the latter with vertex with yellow hairs, frons black hairs, dorsum of thorax and abdomen with yellow hairs, the flagellomere yellowish brown.

Etymology. The specific epithet is derived from the type locality, Zhangmu, Tibet, China.

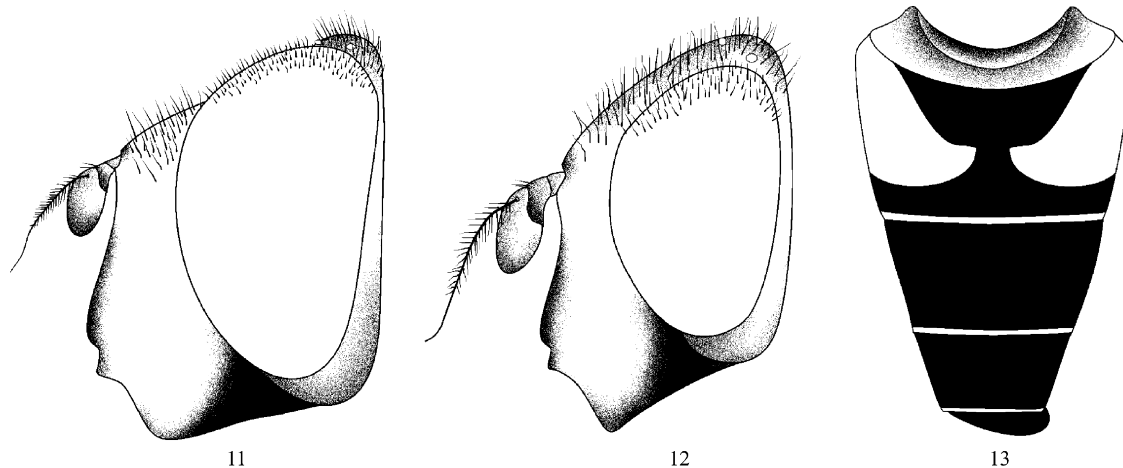
2.4 *Eristalis borealis* sp. nov. (Figs. 11-13)

Male. Head broader than thorax. Eyes covered with dark brown hairs on upper half parts, with line of connection of eyes longer than vertical triangle. Vertical triangle black, with black hairs, except yellow hairs posteriorly, ocellar triangle convex, equilateral, ocelli cardinal red. Occiput black, covered with yellow dusting, yellow brown hairs dorsally, whitish yellow dusting, white hairs laterally.

Frons covered with yellow dusting and hairs, with a shining, hemicycle, dark brown spot anteriorly, hairs around the spot black, frontal eminence less than 90°. Lunule dark brown. In profile face slightly concave below frontal prominence, with lower half projected forward and downward, medial facial tubercle small, without distinct furrow between facial tubercle and oral margin. Face yellow, but black laterally below eyes, medial stripe broad, black, extending from oral margin to below frontal prominence. Face covered with whitish yellow tomentum and yellow hairs, except black area bare. Cheeks black, with whitish yellow dusting and long yellow hairs. Antennae black, with arista black brown, the basal half plumose.

Mesonotum black, postpronotal lobe dull yellow, covered with thin grey yellow pollen and yellow hairs, but hairs on sides brownish yellow. Scutellum yellow, covered with yellow pollen and hairs. Pleura black, with thin lark dusting and yellow hairs. Legs black, with femora yellow apically, hind femur dull brown basally. Basal 2/3 of fore tibia and basal 1/3 of hind tibia yellow to whitish yellow, middle tibia yellow, but apex yellow brown. Basitarsus of fore legs brownish, basitarsus and base of 2nd segment of middle tarsi yellow. Hairs on legs yellow, except black hairs on apical half of hind femur ventrally and hind tibia apically. Wings transparent, slightly tinged with yellow basally, stigma dark brown. Haltere yellow.

Abdomen dull black, tergite 2-4 with narrow



Figs. 11-13. *Eristalis borealis* sp. nov. 11. Head, in lateral view ♂. 12. Head, in lateral view ♀, 13. Dorsum of abdomen ♂.

yellow margins apically, tergites 3 and 4 with shining black bands medially. Tergite 1 grey yellow on anterior corner laterally, densely covered with grey yellow dusting and yellow hairs. Tergite 2 with

triangular spots laterally, extending to anterior margin of tergite laterally outside, far from apical yellow margin posteriorly, yellow spots with straight posterior margins and concave inner margins, hairs on dorsum

yellow basally and laterally, black brown posteriorly. Tergite 3-5 with black brown hairs but yellow laterally. Venter black brown, yellowish brown pilose, sternite 1 with dark black spot medially, sternites 1-2 and base of sternite 3 yellow brown.

Female. Frons with space about 1/3 of head in width at base of antennae. Vertical triangle black, covered with dull brown dusting and black brown hairs, but yellow brown hairs posteriorly. Frons furnished with grey yellow dusting and black brown hairs. Arista yellow brown. Abdomen dull black, with 2/3 of posterior part of tergite 5 shining black, tergite 2 with appressed black hairs posteriorly. Venter dark black, but sternite 1 yellow brown, as well as sternite 2 basally and laterally. All other characters as in male.

Length. Body: ♂14 mm, ♀15 mm; wing: ♂11 mm, ♀12 mm.

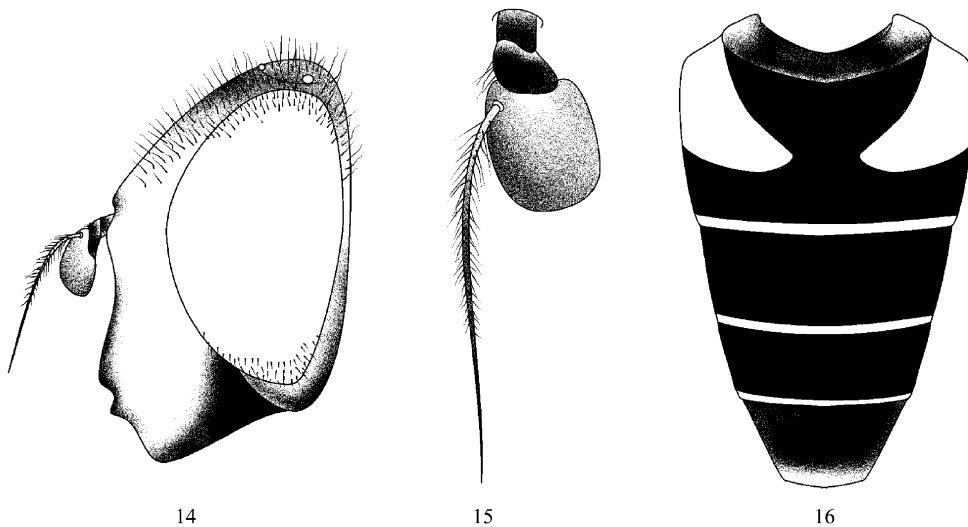
Holotype ♂, Suifenhe (44° 24' N, 131° 11' E),

Heilongjiang Province, 15 June 2003, collected by YANG XiuJuan. Paratypes: 2 ♀ ♀, as holotype; 1 ♀, Wuying, Heilongjiang Province, 24 July 2003, collected by LIU Bir Bin; 1 ♀, Mt. Changbai, Jilin Province, 8 Aug. 2004, collected by REN Gour Dong; 1 ♀, Mt. Nincui, Mangui, Inner Mongolia autonomous Region, 29 July 2004, collected by REN Gour Dong.

The new species is similar to *Eristalis horticola* DeGeer and *Eristalis immaculatis*. It differs from *Eristalis horticola* with scutellum yellow pilose, tergite 2 with yellow spots on basal half laterally, far from apical yellow margin posteriorly, legs with different color; from *Eristalis immaculatis* with frons dark brown pilose.

Etymology. The specific epithet is derived from the type locality, Northeast of China.

2.5 *Eristalis immaculatis* sp. nov. (Figs 14-16)



Figs 14-16. *Eristalis immaculatis* sp. nov. 14. Head, in lateral view ♀. 15. Antenna. 16. Dorsum of abdomen ♀.

Female. Head broader than thorax. Eyes covered with short dull brown hairs. Vertex black, clothed with black brown hairs and dull brown pollen, except yellowish brown hairs posteriorly. Occiput black, covered with brown dusting, dull brown and black hairs dorsally, but whitish yellow dusting and white hairs laterally. Frons black, covered with grey yellow pollen and yellowish brown hairs, broadened forward laterally, with space about 1/3 of head in width at base of antennae. Frontal prominence black, shiny, bare above base of antennae. In profile face slightly concave below antennal prominence, with lower half projected forward and downward, facial medial

tubercle small, without cross furrow between medial facial tubercle and oral margin. Face yellow, black laterally below eyes, black medial stripe broad, extending from oral margin to below frontal prominence. Face covered with whitish yellow tomentum and yellow hairs, except black area bare. Cheeks black, with whitish yellow dusting and long yellow hairs. Antenna black brown, basal 2 segments black, arista plumose on basal two third.

Mesonotum black, densely clothed with buff dusting and yellow hairs. Scutellum brown yellow, covered with yellow pollen and hairs. Pleura black, grey yellow pollinose thinly, yellow pilose. Legs

black, with basal 1/3 of hind femur, apex of all femora, basal half of fore tibia, basal 1/3 of hind tibia and most part of middle tibia yellow, except black brown on middle tibia apically. Basitarsi of fore legs and middle legs, base of 2nd segment of middle tarsi yellow to whitish yellow. Hairs on legs yellow, except black hairs on apical half of hind femur ventrally. Wings transparent, slightly tinged with yellow basally, stigma dark brown. Halter yellow.

Abdomen dull black, tergites 2-4 with narrow yellow margins apically, tergites 3 and 4 with shining black bands medially, about 1/3 of tergite in length, tergite 5 shining black on apical 2/3. Tergite 1 densely covered with grey yellow dusting and yellow hairs. Tergite 2 with triangular lateral spots on basal half, extending to anterior margin of tergite outside, far from apical yellow margin posteriorly, yellow spots with straight posterior margins laterally and concave inner margins, hairs on dorsum yellow basally and

laterally, black brown, appressed hairs posteriorly. Tergites 3-5 with black hairs but yellow laterally. Venter dark black, yellowish brown pilose, sternite 1 with dark black spot medially, sternites 1 and base of sternite 2 yellow brown.

Male: unknown.

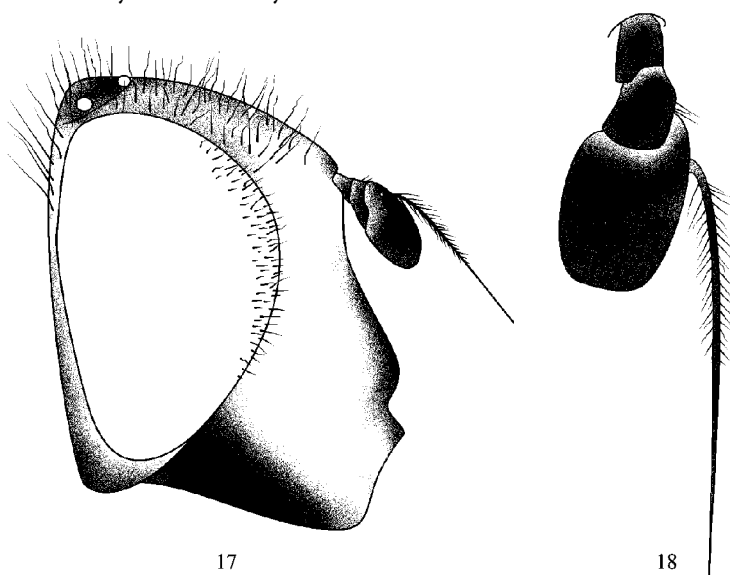
♀. Length: body 12 mm; wing 10 mm.

Holotype ♀, Mohe (53° 0' N, 122° 28' E), Heilongjiang Province, 31 July 2004, collected by REN Guo Dong. Paratypes: 1 ♀, as holotype; 1 ♀, Song, Tibet, 30 July 2004, collected by BA Yi Bin.

The new species is close to *Eristalis mohensis*, but differs from the latter with wing transparent, without yellow brown spot medially; frons yellow pilose.

Etymology. The specific name is derived from the Latin words *im-* (non) and *maculatus* (spot), referring wings without spots.

2.6 *Eristalis mohensis* sp. nov. (Figs. 17-18)



Figs. 17-18. *Eristalis mohensis* sp. nov. 17. Head, in lateral view ♀. 18. Antenn.

Female. Head broader than thorax. Eyes clothed with short grey yellow hairs anteriorly. Vertex black, clothed with black hairs and dark brown pollen, except yellowish brown hairs posteriorly. Occiput black, covered with brown dusting, dark brown and black hairs dorsally, but whitish yellow dusting and white hairs laterally. Frons black, covered with grey yellow pollen and brownish black hairs, but hairs on frontal prominence yellow brown laterally, broadened forward laterally, with space about 1/3 of head in width at base of antennae. Frontal prominence shining black, bare above base of antennae. In lateral view face slightly concave below antennae prominence, with

lower half projected forward and downward, medial facial tubercle small, with distinct cross furrow between facial medial tubercle and oral margin. Face yellow, but black laterally below eyes, black medial stripe broad, extending from oral margin to below frontal prominence. Face covered with whitish yellow tomentum and yellow hairs, except black area bare. Cheeks black, with whitish yellow dusting and long yellow hairs. Antennae black, arista plumose on basal two third.

Mesonotum black, clothed with grey yellow dusting densely and yellow hairs. Scutellum brown yellow, covered with yellow pollen and hairs. Pleura

black, grey yellow pollinose thinly, yellow pilose. Legs black, with base of hind femur, apex of all femora, basal half of fore tibia, basal 1/3 of hind tibia yellow to whitish yellow, most part of middle tibia yellow, except black brown apically. Basitarsi of fore legs and middle legs, base of 2nd segment of middle tarsi yellow to brown yellow. Hairs on legs yellow, except black short hairs on apical half of hind femur ventrally. Wings transparent, slightly yellow basally, yellow brown medially, stigma dark brown. Halter yellow.

Abdomen dull black, tergites 2-4 with narrow yellow margins apically, tergites 3 and 4 with shining black bands medially, about 1/3 of tergite in length, tergite 5 shining black on apical 2/3. Tergite 1 densely covered with grey yellow dusting and yellow hairs. Tergite 2 with triangular lateral spots on basal half, extending to anterior margin of tergite outside, far from apical yellow margin posteriorly, yellow spots with straight posterior margins laterally and concave

inner margins, hairs on dorsum yellow basally and laterally, black brown, appressed hairs posteriorly. Tergites 3-5 with black hairs but yellow laterally. Venter dark black, yellowish brown pilose, sternite 1 with dark black spot medially, sternites 1 and base of sternite 2 yellow brown.

Male: unknown.

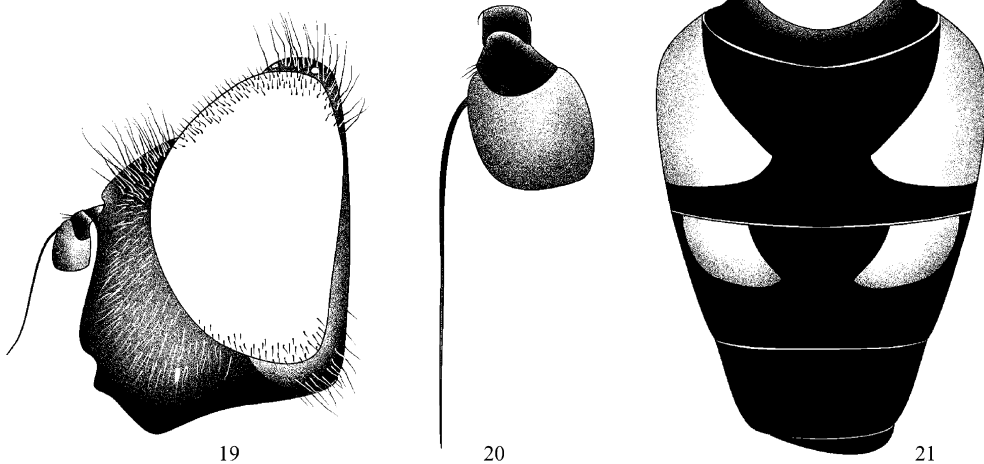
♀. Length: body 12 mm; wing 10 mm.

Holotype ♀, Mohe (53° 0' N, 122° 28' E), Heilongjiang Province, 31 July 2004, collected by REN Guo-Dong.

The new species is close to *Eristalis horticola* DeGeer, but differs from the latter with scutellum yellow pilose, wing transparent, without yellow brown spot medially; frons yellow pilose.

Etymology. The specific epithet is derived from the type locality, Mohe, Heilongjiang Province, China.

2.7 *Eristalis zhengi* sp. nov. (Figs. 19-21)



Figs. 19-21. *Eristalis zhengi* sp. nov. 19. Head, in lateral view ♂. 20. Antenna. 21. Dorsum of abdomen.

Male. Head broader than thorax. Eyes heavily black brown pilose, with line of connection of eyes slightly shorter than vertical triangle. Vertical triangle shining black, clothed with black hairs, except for yellow hairs posteriorly. Ocellar triangle equilateral, with anterior ocellus smaller than posterior ocelli. Occiput black, covered with yellow dusting, yellow brown hairs dorsally, whitish yellow dusting, white hairs laterally. Frons covered with thin white dusting and whitish yellow hairs, except for a few black hairs dorsally along margins of eyes, frontal eminence less than 90°. Lunule yellow brown. In lateral view face slightly concave below frontal prominence, with lower half projected forward and downward, medial facial

tubercle small, without distinct furrow between facial tubercle and oral margin. Face shining black, with medial stripe shining black, bare, covered with white pollen sparsely and hairs laterally. Oral margin with broad, shining black edge. Cheeks black, with whitish yellow dusting and long yellow hairs. Antennae black, with the flagellomere nearly quadrate, slightly wider than long, covered with grey pollen, arista black, bare.

Mesonotum black, covered with whitish yellow hairs, but hairs on sides brownish yellow. Scutellum yellow brown, but dull black laterally at base, covered with yellow brown hairs. Pleura bright black, with thin grey yellow dusting and yellow brown hairs, but

hairs on anterior part of posterior convex parts of anepisternum, anterior parts of katepisternum, black brown. Legs bright black, clothed with black hairs. Hind legs with femora not thickened, tibia slightly curved, compressed laterally at apical half. Wings hyaline, slightly yellow basally, stigma dark brown. Halter yellow, head black brown.

Abdomen bright black, oviform, wider than thorax. Tergite 1 covered with grey yellow pollen and yellow hairs. Tergite 2 with triangular yellow spots laterally, extending to anterior margin of tergite, yellow spots with straight posterior margins and concave inner margins, distance between inner ends about 60% of tergite in width, hairs on dorsum yellow basally and laterally, black hairs posteriorly. Tergite 3 with hooked yellow lateral spots at basal half,

extending to anterior margin of tergite, very far from lateral margins, yellow spots with arcuate posterior margins and slightly concave inner margins, inner ends of spots separated broadly. Tergites 3-5 with black hairs but yellow laterally. Venter bright black, yellow brown pilose.

Female: unknown.

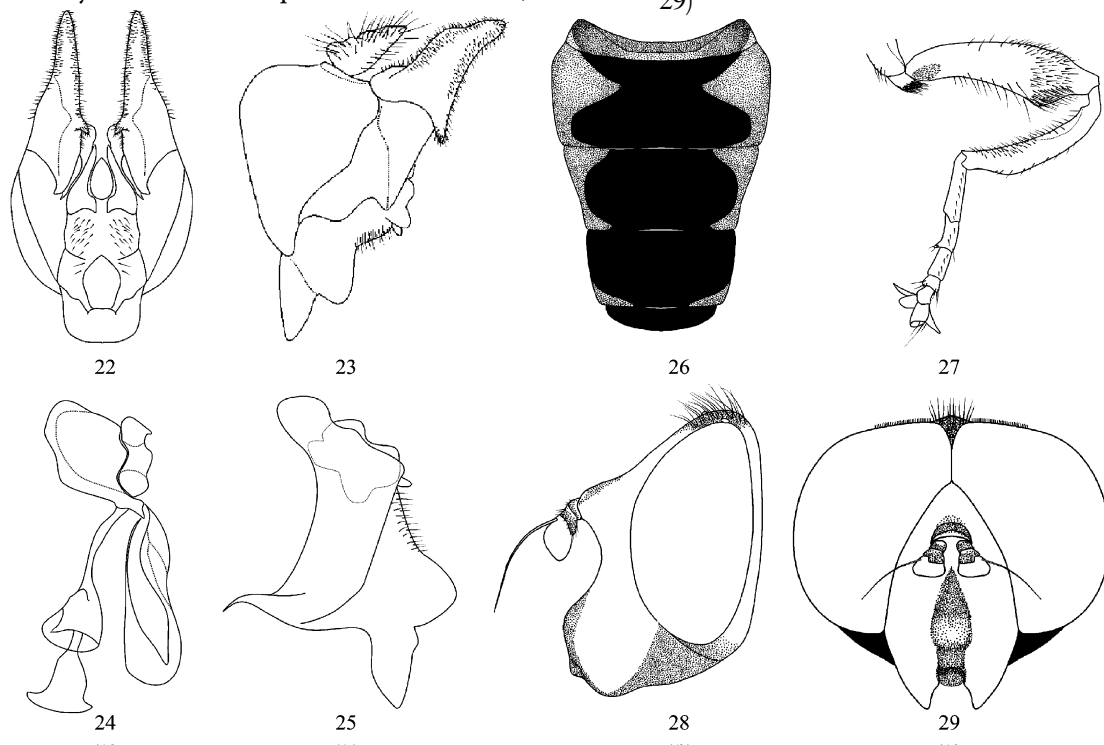
♂ Length: body 12 mm; wing 10 mm.

Holotype ♂, Maizhokunggar (29° 50' N, 91° 44' E), Tibet, 5 July 2002, collected by BA Yi Bin.

The new species differs from other species in genus with body bright black.

Etymology. The new species is named after Mr. ZHENG Zhe Min, entomologist of China.

2.8 *Mallota viridiflavescens* sp. nov. (Figs. 22-29)



Figs 22-29. *Mallota viridiflavescens* sp. nov. 22. Genitalia, in ventral view ♂. 23. Genitalia, in lateral view ♂. 24. Aedeagus. 25. Hypandrium, in lateral view ♂. 26. Dorsum of abdomen ♂. 27. Hind femur ♂. 28. Head, in lateral view ♀. 29. Head, in frontal view ♂.

Male. Head broader than thorax. Eyes densely brown pilose, with line of connection of eyes nearly equal ocellar triangle in length. Vertex black, yellow pollinose anteriorly, thickly with long, black hairs, yellow brown hairs posteriorly, ocellar triangular convex. Occiput broad, inflated, covered with whitish yellow pollen and greenish yellow hairs. Frons black, densely clothed with grey dusting and long greenish yellow hairs, frontal prominence distinct, bare, bright black with yellow brown margin. In profile face deeply

concave below frontal prominence, projected downward and forward taper-shaped bluntly, with medial facial tubercle broad and flat. Face black, covered with grey tomentum and long greenish yellow hairs, except medial facial stripe and below eyes laterally bright black, bare. Cheeks black, with grey pollen and yellowish green hairs. Antennae black brown, basal 2 segments with whitish yellow hairs but black hairs dorsally, the flagellomere wider than long, broadly rounded apically. Arista yellow brown, long,

bare.

Mesonotum black, covered with long greenish yellow hairs, except black hairs between postalar callus, densely with grey pollen, especially thicker before transverse suture, and dull brown stripes posteriorly. Scutellum yellow, but black on base, covered with long greenish yellow hairs. Pleura black, with grey pollen and long greenish yellow hairs. Metasternum with long whitish yellow hairs. Legs black. Fore legs with knee dull yellow, tarsi yellow brown, clothed with black hairs, intermixed with yellow brown hairs on coxae and trochanters, long hairs on lower part of femora posteriorly, short hairs on outer parts of tibiae whitish yellow, tarsi with short black spines posteriorly. Middle leg similar to fore leg, but furnished with black spines on anterior margins of tarsi and ventral of basitarsus. Hind leg with trochanter of cluster of backwards appressed, black hairs, femora thickened, tapered apically, with triangular prominence of black hairs at apical 1/3 ventrally, arched dorsally, tibia curved, compressed laterally, knees dull yellow, tibia with triangular dull yellow spot medially, tarsi reddish yellow. Hairs on hind legs black, except hairs on coxae whitish yellow, long hairs on femora yellow brown anteriorly and dorsally, short tawny hairs on inner sides of tibia apically, tarsi with black hairs dorsally, short black spines anteriorly and short tawny hairs ventrally. Wing hyaline, stigma dull black, R_1 cell open.

Abdomen black, covered with greenish yellow hairs, broader than thorax, the broadest part at base of tergite 2, tapered backward. Tergite 2 with triangular spots laterally, with inner ends separated broadly, occupied the lateral margins of tergite outside, the tergite mahogany on lateral sides posteriorly, intermixed with a few black hairs on middle part posteriorly. Tergite 3 with small, triangular yellowish spots laterally at the base, mahogany on sides and apical margin laterally, a few black hairs on apical margin. Tergite 4 yellow brown on apical margin laterally. Abdominal end black, with black and tawny hairs.

Male genitalia. Sclerotized, brownish black. In profile ventral margin of epandrium membranaceous, expanded with undulated lower edge, projected circularly near the middle. Cerci pointed triangular, broader at base, dorsal margin undulated, covered with yellow brown hairs. Surstyli elongate triangular, obtuse apically, dorsal margin undulated, ventral margin arcuate, with acutely triangular prominence on

posterior corners, inner and out surface with short black hairs. Hypandrium prominent circularly at basal half, above it black pilose. Superior lobe with obtusely rounded apex. Aedeagus as showed in Fig. 28.

Female. Eyes light pilose. Frons clothed with greenish yellow pollen at basal half, extended forward along eyes, being joined with pollen of face. Face brownish black laterally below eyes. Antennae yellow brown with basal 2 segments brownish black. Mesonotum with a few black hairs between postalar callus medially. Legs mostly black, femora brown apically, fore and middle tibiae dull brown with dark spots anteriorly and posteriorly, hind tibia brown basally and apically. Legs greenish yellow pilose mostly, except black hairs on apex of fore femur posteriorly, 2-5 segments of fore tarsi dorsally, apical half of middle femur ventrally, apical 3 segments of middle tarsi, apex of hind femur, tibia and tarsi dorsally. Fore tarsi with a row of black spines anteriorly, middle tarsi 4 rows of black spines ventrally, a row of black spines hind tarsi posteriorly.

Length. Body: ♂ 15 mm, ♀ 17 mm; wing: ♂ 12.5 mm, ♀ 14 mm.

Holotype ♂, Mt. Zibai (34° 04' N, 107° 45' E), Liuba, Shaanxi Province, 24 July 2003, collected by HUO Ke-Ke. Paratypes: 2 ♂♂, 1 ♀, as holotype; 1 ♂, Liuba, Shaanxi Province, 14 June 2004, collected by HUO Ke-Ke; 1 ♀, Qinglong, Hebei Province, 23 July 1998, collected by REN Qiu Zhong.

The species is similar to *Mallota orientalis*, but differs from it with yellowish green hairs on body mostly, mesonotum with a few black hairs between postalar callus, scutellum black at basal half, male genitalia different.

Etymology. The specific epithet is derived from the Latin words *viridis* (green) and *flavescentis* (yellow), referring to color of hairs on body.

2.9 *Volucella sichuanica* sp. nov. (Figs. 30)

Male. Head broader than thorax. Eyes brownish black, line of connection of eyes about 2/3 of vertical triangular. Vertical triangular narrow, elongate, black, short black pilose before lateral ocellus, long whitish yellow, but light brown at apical half, pilose after ocellar triangle, ocellar triangle located before middle of vertex. Occiput extremely narrow dorsally and on upper half laterally, broadened on lower half laterally, black, grey pollinose, brownish black pilose dorsally and on upper half laterally, longer yellow pilose on lower half laterally. Frons black, brownish black pilose. Lunule dull mahogany. In profile face

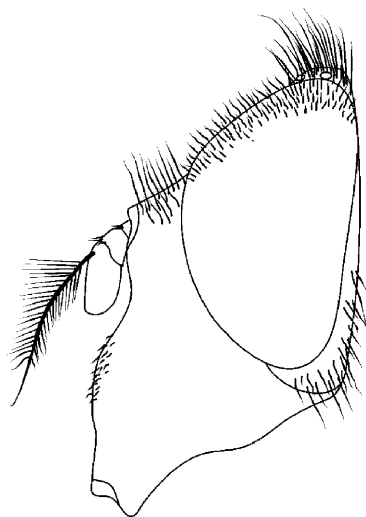


Fig 30. *Volucella sichuanica* sp. nov., head, in lateral view ♂.

deeply concave below antennal prominence, projected downward elongately cone shaped at lower half, in frontal view expanded downward laterally, medial facial tubercle large, rounded. Face black, shiny, short yellow pilose, yellow hairs on upper slope of facial tubercle longer, surface of notch below antennal prominence dusting, absent of hairs. Cheek shining black. Antennae dull brown, the flagellomere narrow, rounded apically, slightly broader at base. Arista brownish black plumose, upper arisal hairs distinctly longer than lower.

Mesonotum longer than wide, black except dull yellow on postpronotal lobe, transverse suture and postalar callus, thickly long whitish yellow pilose, with a pair of longitudinal stripes of black hairs, not extended to apical margin of mesonotum, black bristles on notopleuron, lateral margins after transverse suture anteriorly, postalar callus, notopleuron intermixed with a few black hairs. Scutellum dull yellow, thickly long whitish yellow pilose, absent of marginal bristles posteriorly. Pleura black, brownish black pilose, posterior parts of anepisternum of mesothorax with long light hairs and black bristles, anepimeron with long light and black hairs. Legs black, except femora dull mahogany apically, tibiae deeply brown, with dull spots near middle, tarsi darker brown. Legs black pilose, but hairs on fore tibia inside and all of tarsi red brown ventrally. Wing brown clouded medially.

Abdomen black, conspicuously broader than thorax, narrowed at apical part, arched dorsally. Tergite 1 buff pilose, but black pilose laterally. Tergite 2 with triangular yellow spots laterally at base, away from anterior margins of tergite laterally,

covered with half erected black hairs, but hairs on anterior part yellow, yellow hairs longer at base laterally and on sides. Tergite 3 mostly half erected black pilose, apical margin and other tergites long reddish brown pilose. Venter black, shiny, with dull blue reflection, but tawny to red brown on sternite 2 medially and sternite 3 anteriorly. Sternites 1 and 2 long whitish yellow pilose medially, short appressed black pilose laterally. Other sternites long red brown pilose.

Female: unknown.

Holotype ♂, Mt. Quegong (30° 09' N, 101° 58' E), Kangding, Sichuan Province, 5 Aug. 1999, collected by REN Guo Dong.

The new species is close to *Volucella plumatoides* and *Volucella bombylans*, but differs from the both with mesonotum yellow pilose, with a pair of longitudinal stripes of black hairs, tergite 3 without light spots in color; differs from *Volucella plumatoides* with upper arisal hairs longer than lower; from *Volucella bombylans* with head black.

Etymology. The specific epithet is derived from the type locality, Sichuan Province, China.

REFERENCES

- Barkalov, A. V. and Cheng, X Y 2004. Revision of the genus *Chalosis* Meigen, 1822 (Diptera: Syrphidae) of China. *Contributions on Entomology, International*, 5 (4): 267-421.
- Brunetti, E. 1923. Syrphidae. In: *The Fauna of British India* (Diptera, Brachycera). Vol. 3. Today & Tomorrow's Printer & Publisher, London. 23-134.
- Cœ, R. L. 1953. Diptera, Family Syrphidae. *Handb. Ident. Br. Insects*, 10 (1): 1-98.
- Curran, C. H. 1928. The Syrphidae of the Malay Peninsula. *J. Fed. Malay States Mus.*, 14: 141-324.
- Curran, C. H. and Fluke, C. L. 1926. Revision of the Nearctic species of *Helophilus* and allied genera. *Trans. Wis. Acad. Sci. Arts Lett.*, 22: 207-81.
- Holloway, G. J. 1994. Separation of some *Eristalis* species using abdominal colour pattern. *Br. J. Ent. Nat. Hist.*, 7, 99-101.
- Hippa, H. 1978. Classification of Xylotini (Diptera, Syrphidae) *Acta Zool. Fenn.*, 156: 1-153.
- Hull, F. M. 1949. The morphology and inter relationship of the genera of syrphid flies, recent and fossil, *Trans. Zool. Soc. Lond.*, 26: 257-408.
- Knutson, L. V., Thompson, F. C. and Vockeroth, J. R. 1975. Family Syrphidae. In: Delfinado and Hardy (edit.), *A Catalog of the Diptera of the Oriental Region*. Vol. 2. The University Press of Hawaii, Honolulu. 324-328.
- Lundback, W. 1916. *Diptera Danica* 5 (Lonchoceridae, Syrphidae). Copenhagen, 18-594.
- Peck, L. V. 1988. Syrphidae. In: Soos, A. and Papp, L. (ed.), *Catalogue of Palaearctic Diptera* 8 (Syrphidae & Conopidae). Akad. Kiado, Budapest / Elsevier, Amsterdam. 11-230.
- Li, QX 1996. Descriptions of two new species of the genus *Mesembrius* from China (Diptera: Syrphidae). *Acta Zootaxonomica Sinica*, 21

(4): 483-487. [动物分类学报]

Li, QX 1999. Descriptions of three new species of the genus *Eristalis* Latreille (Diptera: Syrphidae) from northwest of China. *Entomologia Sinica*, 6 (3): 209-218.

Sack, P. 1932. Syrphidae. In: Lindner, E. (ed.), Die Fliegen der Palaearktischen Region. Stuttgart: E. Schweizerbart'sche Verlagsbuchhandlung. 427-432.

Shiraki, T. 1930. Die Syrphidea des Japanischen Kaiserreichs, mit Berücksichtigung benachbarter Gebiete. *Mem. Fac. Sci. Agric. Taihoku Imp. Univ.*, 1 (1): 1-446.

Shiraki, T. 1968. Syrphidae (Insecta: Diptera). In: Fauna Japonica, Vol. II. Biogeogr. Soc. Japan, Tokyo. 1-243.

Shiraki, T. 1968. Syrphidae (Insecta: Diptera). In: Fauna Japonica, Vol. III. Biogeogr. Soc. Japan, Tokyo. 1-272.

Stubbs, A. E. 1983. British Hoverflies. Br. Ent. Nat. His. Soc. London. 1-253.

Verrall, G. H. 1901. British Flies. Vol. VIII, Platypodidae, Pipunculidae and Syrphidae of Great Britain. Gurney & Jackson, London. 19-683.

Yang, J-K and Cheng, X-Y 1996. In: Xue, W-Q and Zhao, J-M (eds.), Flies of China, Part I. Liaoning Science and Technology

Press, Shenyang. 118-223.

Баркалов, А. В. 2001. Новый Вид и Новый Омоним в Роде *Chalosisia* (Diptera, Syrphidae) из Китая. Зоологический Журнал 80 (3): 376-378.

Виолевич, Н. А. 1983. Сирфиды Сибири (Dipt., Syrphidae). Определитель. Новосибирск: Наука. 3-241.

Баркалов, А. В. and Пек, Л. В. 1997. Мухи-Журчалки Рода *Cheilosia* (Diptera, Syrphidae) 1. Новые Виды, Синонимия, Зоологический Журнал 76 (10): 1168-1178.

Баркалов, А. В. and Пек, Л. В. 1997. Мухи-Журчалки Рода *Chalosisia* (Diptera, Syrphidae) Средней Азии, 2, Определитель, Зоологический Журнал 76 (12): 1370-1380.

Лера, П. А. 1999. Определитель Наемых Длннго Востока России Т. VI. Двукрылые И Блхи. Ч. I. Владивосток: Дальнаука. 342-500.

Штакельберг, А. А. 1950. Краткий Обзор Палеарктических Рода *Mallota* MG (Diptera, Syrphidae). Энтомологическое Обзрение, 31 (1-2): 285-296.

Зимица, Л. В. 1986. Обзор Палеарктических сирфид рода *Calliera* Panzer (Diptera, Syrphidae). Энт. ом. Обт. ом, LXV (3): 633-638.

河北大学博物馆馆藏迷食蚜蝇亚科分类研究 (双翅目, 食蚜蝇科)

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摘 要 在系统整理河北大学博物馆馆藏食蚜蝇科 Syrphidae 昆虫标本的基础上, 鉴定出中国迷食蚜蝇亚科 Milesiinae 9 族, 21 属 37 种, 其中 9 新种: 红腹柄角蚜蝇 *Monoceromyia rufipaiolata* sp. nov., 暗红黑蚜蝇 *Cheilosia rubescense* sp. nov., 樟木黑蚜蝇 *Cheilosia zhangmuensis* sp. nov., 北方管蚜蝇 *Eristalis borealis* sp. nov., 无斑管蚜蝇 *Eristalis immaculatis*

sp. nov., 漠河管蚜蝇 *Eristalis mohensis* sp. nov., 郑氏管蚜蝇 *Eristalis zhengi* sp. nov., 黄绿毛管蚜蝇 *Mallota viridiflavescens* sp. nov., 四川蜂蚜蝇 *Volucella sichuanensis* sp. nov.。新种正模标本保存于河北大学博物馆, 副模标本保存于陕西理工学院陕西省资源生物重点实验室。

关键词 双翅目, 食蚜蝇科, 迷蚜蝇亚科, 分类, 新种, 河北大学博物馆, 中国。
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